

Application number: 09/901,961
Examiner: Hillery, Nathan

Filing Date: 07/10/2001
Art Unit: 2176

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Patent application
of
Hai Shum

Title: On Screen Vocabulary for
Ideographic Word Organizing and Searching

Background of the Invention

1. Technical Field

This invention relates to a method for entering ideographic words into a modern computer, and more particularly for entering Chinese words into a computer with a Chinese language operating system installed.

2. Background Art

Chinese language is completely different from English. Typewriting Chinese words into a

modern computer equipped with an English keyboard was not possible until about twenty years ago. Since then, nearly a thousand inventions to solve this challenging task have patented world wide. Among these inventions, the majority is the kind that adapted the concept of English typing, using the alphabet keys of the keyboard spells out the Latin spelling of Chinese words, or using the keys, each of which is assigned with a few strokes and a few radicals of the nearly two hundred radicals from dismantled Chinese words, re-assemble the words from these strokes and radicals.

These methods are currently utilized. However, they have limitations from their origin. For the people, whose first accent is Mandarin or accents similar to Mandarin, the Latin spelling methods do not require a serious training. Due to the fact that many words share similar spelling, to be able to pronounce the words correctly is required before conducting the typing task. It is known that a same spelling usually stands for numerous words, which are completely different in their meanings, as well as in their appearances, these same pronunciation words are distinguished from each other by the four tones. And more difficult is that a same tone of the same pronunciation represents multiple words in various meanings. To compensate this character of this ancient language, to identify the desired word, a list of these words related to the same spelling is shown in a small window, the typist is required to tap in a number associates with the word to select it. This selecting process reduces the speed of typing. The typist has to try a few attempts to find the target word. For the people, who are not familiar with the standard Mandarin, this spelling method often becomes a mission impossible.

Currently, the majority of professional typists uses the stroke methods, which typewrites the strokes and radicals as components to rebuild words. Or, identifying the four corners of

these ideographic square shape words, assigning corners with three digit numeral codes, re-assemble words while typing these codes.

It is necessary to point out that the English words are assembled by uniformed alphabets, in a horizontal continuance matter. The Chinese words are two dimensionally assembled by strokes. There are no standard length, no standard angle for the strokes. Each word is irregularly tailored. Each single Chinese word can be willingly dismantled into a few different sets of strokes. Each single word can be seen as a combination of a few different sets of strokes. Typists have to memorize the orders of the assembly of all the words. After a period of very serious training, professional typists are able to input Chinese words in high speed. The typing is stressful. Furthermore, Chinese word structures are different between the traditional form and the simplified form. These stroke methods are based on the structure of the word. One stroke method can only work for one form of Chinese language. That gives limitation from their origin. People, who is familiar with Chinese language, who is knowledgeable in computer, but still unable to typewrite, unwilling to learn typing is a common phenomenon. Many intellectuals still keep hand writing.

These input methods are not profound strategic solutions.

Each Chinese word is a unique piece of art. To keep its integrity has been demanded for generations. There are some inventions patented to input the integral Chinese words, using the cursor to select the words from a list displayed on a device. This method shared a common requirement with the methods described above to have an internal Chinese vocabulary in storage. Instead of match each typed set of Latin spelling or set of strokes/radicals/codes to the corresponding internal stored word, this method copies words

directly from the word display to the word processor. In addition, these methods substantially reduced the dependence of the English keyboard.

Among the inventions of this kind, a patent issued by China to HouYi-bin and Feng xiu-zen, in July 1989, application number 88103689.7, title: 'Method of Inputting Chinese Words to Computer by Selecting Words on Screen', is the first one to use the technic of selecting an item on screen with the pointing device to enter Chinese words to Computer. This invention disclosed the usage of floating windows carrying Chinese words on a Chinese operating system platform. This invention mentioned using radicals for word group indexing, displaying all the radicals found in the <<New Chinese Dictionary>> on screen, selecting the one leading to the desired word and having all the words under that radical displaying on screen in a second window. As broadly known by all, radicals are the roots of words, one radical possibly stands for a few hundreds of words or only a few. Without dividing words into level of using frequency, searching will not be easier. Another shortcoming of this invention is that it did not utilize the existing keyboard.

An U.S. patent, No.4951033, issued in Aug.1990 to Sakaguchi, describes a system and method to input integral words. This invention was applied in 1987, a continuation of the application of 1984, when the modern word processor wasn't available, at the time a personal computer had small internal memory. This invention created 20 word groups, each carry 8 words, which is not sufficient for normal practical use. It didn't reveal a method of organizing and searching a large volume of words.

Microsoft's program 'Word Perfect'; a publication by Simpson, Allen 'Mastering WordPerfect' have a step by step, clear discription of selecting a word or a symbol from a window having as much as 1400 items.

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Summary

The present invention is aimed to solve the problems mentioned above.

The primary objective of this present invention is to maintain the integrity of the Chinese language. Words are not dismantled into strokes, nor spelled by alphabets. Each word is displayed and entered as a complete integral unit. The meanings of words and radicals are used as leads and indexes for organizing and searching words.

The main objective of this present invention is to create a typewriting method that does not require training. A person with minimum knowledge of computer and capable to read, to write Chinese language is able to typewrite Chinese words using this method offered by this invention, with complete accuracy at the virgin attempt. The pace of typing increases as the typing tasks progress.

The traditional way to search a word in a Chinese dictionary is following the orders of the orthodox radicals. It is often a very hectic process. Some words have multiple radicals, some words have hidden radicals, some words have implicit radicals and some words have conjectural ambiguous radicals. Some words have multiple meanings.

In a Chinese dictionary, a word appears only once as a principle of a dictionary, despite the extreme difficulty of finding it. A few attempts of trying different radicals is often needed before locating a word or even finding unsuccessfully. This orthodox radical word arrangement principle has restrained the broad use of the traditional Chinese dictionary.

Simply adapting it to the vocabulary arrangement for word processing is not wise.

The present invention offers an important objective to arranging the words principally from the meaning thereof, the radical order is secondary. Words also filled into pages according to the shape and the dominant stroke thereof. Under this word classifying principle, frequently used words and 'hard to find' words have opportunity to be listed into multiple pages, greatly reducing word searching time. Words are listed under the meaning thereof, following the thinking of the typist, a string of words naturally appear on screen in sequence as the typing in progress

A feature is added to have additional blank space in pages for encouraging the user to fill in additional words conveniently for easy locating. Another feature is also added to have words to be relocated or exchanged to pages that are convenient for the typist.

Until the present time, inventions of this class/sub-class, have become practically use are all adapted the concept of English typing, heavily depend on the keyboard. It is another objective of this invention to minimize the dependence of the keyboard. There is another beneficial objective of the invention to be completely independent from the Chinese word pronunciation, users from different region with different dialect/accent background have an equal opportunity to utilize this method. Furthermore, there are no requirement of memorizing any long set of codes.

There is an additional objective of the present invention. The traditional form and the simplified form of Chinese words are stored in two separated divisions, an user has no fear to type a wrong form of word in a formal written communication. However, these two forms of words exist within same program offered by this invention. It takes only a click on the pointing device or a tap on the keyboard to switch from one to another. It is

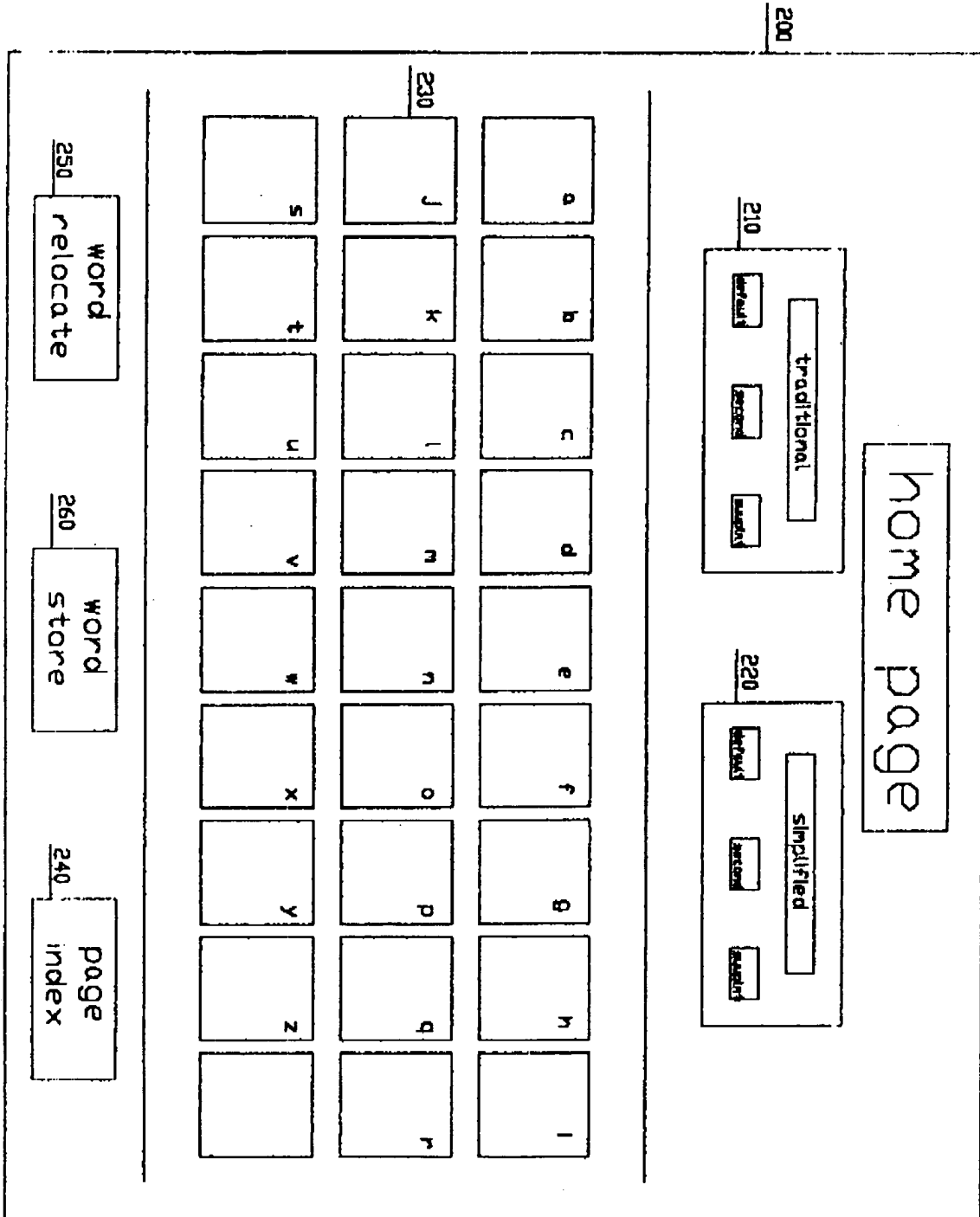


Fig. 2

user a very easy way to find the corresponding word in the opposite form.

The block 470 is the default tier, it is automatically selected for locating primary words.

The block 471 shows 'a to z' pages. The block 480 and 481 are second tier and pages, contains same number of pages as the primary tier. The block 490 and 491 are supplemental tier and pages, contains same number of pages, but more words.

A bridge (passage) 478 crosses from block 471 to block 481 indicates that words may be relocated between them. A bridge 489 crosses from block 481 to block 491 indicates that words may be relocated between them. A bridge 479 crosses from block 471 to block 491 indicates that words may be relocated between them.

The simplified division components are indexed with lower case of letters, a to z.

For the reason of being identical in their structure, the traditional division has same number of blocks and bridges as the simplified division. The default tier and pages are 420 and 421. The second tier and pages are 430 and 431. The supplemental tier and pages are 440 and 441. The bridges cross them are 423, 434, 424, on which words travel across.

For cross reference of the vocabulary of the two word form divisions, bridges are arranged. For the reason of corresponding location of the equivalent words, bridges cross the corresponding addresses in the corresponding pages only. That is a bridge cross between two same alphabet letter indexed pages only (one page indexed with the upper case letter, the other page with the lower case letter) in a same level of tier.

Bridge 427 crosses the pages 421 and 471, for the tiers 420 and 470; bridge 438 crosses the pages 431 and 481 for the tiers 430 and 480; bridge 449 crosses the pages 441 and 491 for the tiers 440 and 490.

For the reason of being correspondingly equivalent of the cells and its occupants(words)

10

number(s). Each supplemental tier word page may have more than 100 words, needs two digit column number and two digit row number. Each address blank 531 has six digit space to be fully adequate for accommodation of a full length address.

The user enters the associating address of the word into the blank 531, hit 'Enter' key of computer keyboard, the word will be delivered to the corresponding small window 532 under the blank 531 for identification. Choices are provided on step 540, if the word is incorrect, return to step 530 to repeat the process. If the word is the desired for relocation, as delivered to the small window 551 of the new address window 550, the user

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